Artificial Intelligence Leaders Discuss AI for National Security in NPS Latest Guest Lecture

Naval Postgraduate School, Monterey California

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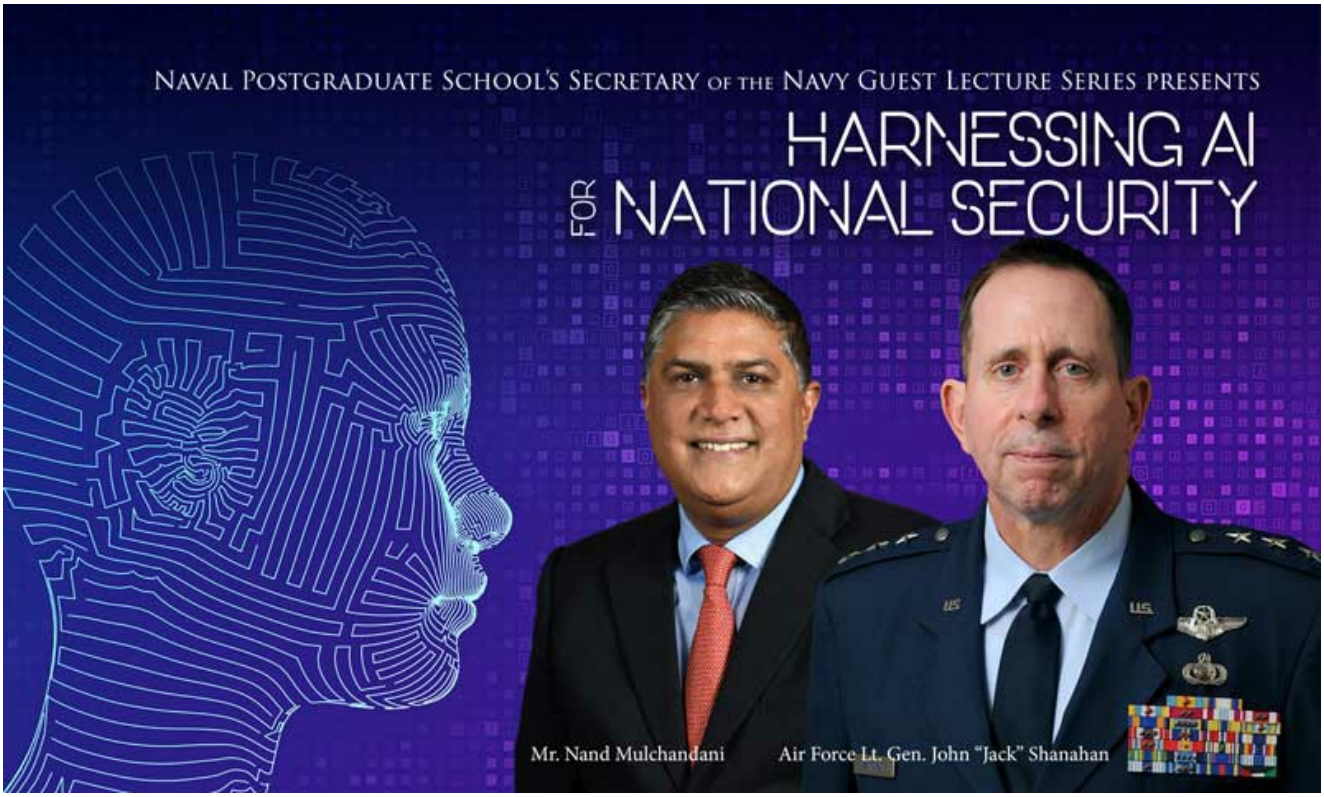
MC2 Tom Tonthat | October 15, 2020



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Watch Video At: https://youtu.be/gJgm7eUfg0o

The Joint Artificial Intelligence Center (JAIC) is the Department of Defense's lead organization for accelerating the adoption of artificial intelligence (AI) across the services. And it's a critical role, as top leaders believe AI will eventually impact every warfighting domain, even every mission, the DOD undertakes.

With NPS faculty and students currently teaching and researching varied AI concepts and applications, and translating them into future naval capabilities, the university is deeply embedded in advancing the technology and the DOD's AI workforce. With this role in mind, NPS hosted two of the JAIC's most senior leaders, retired Air Force Lt. Gen. John N.T. "Jack" Shanahan, the inaugural and former Director, and Nand Mulchandani, the current Chief Technology Officer, to speak to students, faculty and staff about their experiences organizing efforts to develop artificial intelligence (AI) projects on a DOD scale during NPS' latest virtual Secretary of the Navy Guest Lecture (SGL), held Oct. 13.

Shanahan and Mulchandani are the latest high-profile leaders to participate in the virtual SGL series, following the likes of retired Adm. Mike Mullen, Army Gen. Keith B. Alexander and retired Navy Vice Adm. Jan E. Tighe, and retired Adm. William McRaven.

Retiring earlier this year after serving as JAIC's first director, Shanahan opened the talk by briefly reviewing how the JAIC evolved from an Algorithmic Warfare Team synthesizing DOD's sheer volume of collected full-motion video data, called Project Maven, into a joint platform to harness the "game-changing power of AI."

“Project Maven was focused on the intelligence enterprise to automate, accelerate and augment the processing, exploiting and dissemination of intelligence,” said Shanahan. “Humans were doing mind numbing duty looking at video screens 12 hours a day. We really needed something that would allow us to begin to really accelerate the adapting, fielding and scaling of existing AI into capabilities, and that is how [JAIC] got started into the fielding and scaling of AI for the whole DoD.

“From undersea to outer space and cyberspace, from the back office to the battlefield, there is no mission in the DOD that will not be enhanced in some way by AI,” continued Shanahan. “What I believe the JAIC will be known for in five years is building a joint common foundation focused on product development, and a distinct focus on end-user experience and interface where warfighters can come in and get access to the data and operational tools they need.”

As JAIC grew and expanded from a small team to a staff of more than 200 people, Shanahan reflected on the single most important hire he made in standing up the organization, bringing in Mulchandani as the Chief Technology Officer. Mulchandani, who has 25 years of experience in the technology industry as a serial entrepreneur and senior executive, brought key understanding of turning project management into product development which changed the entire organization from the beginning, according to Shanahan.

“The work that he and I did in terms of teaming up where [Shanahan] being the classic CEO founder type, combined with the best of product development, I think that was the most powerful combination in founding AI for the DOD,” said Mulchandani. “One thing that startups do incredibly well is finding canonical patterns and building a highly-leveraged conclusion that they can attack in a very low cost but highly leveraged way. That’s the whole point of having a common infrastructure where you can find a pattern and then create a repeatable pattern and scale it to a point where everybody with an engine across the DOD can utilize this pattern.”

The presentation was broadly acclaimed. Distinguished Professor Peter Denning, Director of the university’s new Consortium for Intelligent Systems Education and Research (CISER) called the presentation one of the best yet.

“This was the first time I’ve heard such a coherent and visionary view of what the DOD can accomplish and how the JAIC can facilitate,” said Denning. “Everything they said made sense. I loved the principles about integrating the four areas of concern, about centralized direction and decentralized implementation, about putting ethics in the forefront of conversations, and about having great relations with our allies. It stimulated the liveliest discussion I’ve seen so far in an VSGL.”

In routine SGL fashion, Shanahan and Mulchandani also fielded questions at the conclusion of their primary remarks. Student questions ranged from topics such as developing AI talent management to the prevention of overreliance on future AI.

“What is instrumental in getting [AI] right is test and evaluation,” said Shanahan. “The issues of accountability and ethics are at the forefront and that is why we are different as the DOD. We do have to think about 10 years from now where somebody somewhere wearing a uniform our suit could be held accountable for [AI] decisions. But we have a lot of people who know how to do this right who understand the boundary conditions so [AI] adheres to the specific purposes for which it is built.”

Mulchandani views the AI elements of accountability, ethics and testing and evaluation as all being inter-related and should be thought of as one single core point.

“If I can’t explain it, if I can’t understand it and if I can’t test it right, then I can’t secure it. If I can’t secure it, I can’t deploy it in a way that creates the desired effect,” he said.

When Marine Corps Master Sgt. Travis Hollingshead, an NPS student pursuing a Master of Applied Cyber Operations degree posed a question about the role of active duty military members within the JAIC’s current environment, recently-confirmed JAIC Director Marine Corps Lt. Gen. Michael Groen, made a surprise appearance on Mulchandani’s virtual feed and answered that question.

“What we need are warfighters,” said Groen. “We need people who understand how decisions are made and how our decisions are structured. We can have all the genius data scientists in the world, but we need somebody who can sit down with a fires [lethal effects] expert, somebody who understands the rules, the outline, the process, and what data informs the decision. If you don't have that level of decision expertise, artificial intelligence applied to the decision is useless.

“We want to build the education pipeline for different work roles in the AI business,” Groen continued. “People touch AI in different ways, there are builders, users and employers, and each one of those skill sets are necessary for us to have a comprehensive understanding of not only bringing AI to the table, but what table to bring it to and what it is supposed to do when it gets there. That’s where having uniformed experts who are really good at the craft can extend their knowledge to AI realm to do data science.”

Shanahan encouraged the NPS audience to continue their innovative drives and research into AI, and to be the leadership who can embrace it.

“We need more leaders who want to understand what AI is and what it is not,” said Shanahan. *“If* you do something well enough and fast enough and long enough over time, the culture begins to change, but it requires generation upon generation of leaders that are really focused on how to get it right. You're out there. You represent those innovators by

being out at NPS right now, and what you're looking for is someone to give you an opportunity to succeed."

To watch the complete lecture and student Q&A session with retired Air Force Lt. Gen. John N.T. "Jack" Shanahan and Mr. Nand Mulchandani, visit the **SGL website**or **NPS YouTube** channel.